

Amendments to the Claims

Listing of Claims:

Claims 1 - 8 (canceled).

Claim 9 (new). A device for measuring individual cell voltages of cells in a cell stack of an energy accumulator, comprising:

a series circuit of two diodes connected in parallel with each cell of the cell stack and connected to conduct current in a direction from a minus pole to a plus pole of the cell;

a changeover switch having a number of terminals assigned to switch positions corresponding to a number of the cells of the cell stack, and a capacitor connecting each of said terminals to a respective node between said diodes assigned to the cells;

a reference circuit having first and second diodes connected in series, said first diode having an anode connected to reference potential and to a cathode of said second diode;

a differential amplifier having a non-inverted input connected to an output of said changeover switch, an inverted input connected via a capacitor to a node between said first and second diodes of said reference circuit, and an output;

a controlled rectifier having an input connected to said output of said differential amplifier and an output carrying a direct current with a voltage, relative to reference potential, proportional to a cell voltage of the cell respectively selected with said changeover switch;

a first controlled alternating current source connected between said non-inverting input of said differential amplifier and reference potential;

a second controlled alternating current source connected between said inverting input of said differential amplifier and reference potential; and

a clock control having an oscillator outputting an oscillator clock signal and a frequency divider outputting a divider signal, wherein said first and second alternating current sources and said rectifier are controlled by the oscillator clock and said changeover switch is controlled by the divider signal.

Claim 10 (new). The device according to claim 9, configured to monitor an energy accumulator in a motor vehicle electrical system.

Claim 11 (new). The device according to claim 9, wherein said rectifier is a synchronous demodulator controlled by the oscillator clock.

Claim 12 (new). A method of measuring individual cell voltages of cells in a cell stack of an energy accumulator, the method which comprises:

providing a device according to claim 9;

for measuring a cell voltage of a given cell of the cell stack, feeding a first square-wave alternating current of a specific frequency and amplitude into the capacitor assigned to the given cell, to thereby produce a first alternating voltage corresponding to the cell voltage of the given cell, multiplied by the on-state voltages of the two diodes connected in parallel with the given cell;

feeding an alternating current with a frequency and an amplitude corresponding to the first square-wave alternating current into the capacitor assigned to the reference circuit, to thereby produce a second alternating voltage, relative to ground, corresponding to the on-state current of the first and second diodes of the reference circuit;

forming a difference between the first and second alternating voltages to generate an alternating voltage corresponding to the cell voltage of the given cell; and

rectifying the alternating voltage corresponding to the cell voltage of the given cell to produce a direct voltage corresponding to the cell voltage of the given cell relative to ground.

Claim 13 (new). The method according to claim 12, which comprises performing the method consecutively to all cells of the cell stack.

Claim 14 (new). The method according to claim 12, which comprises setting a frequency the alternating currents injected into the capacitors high enough to avoid a significant charge or discharge of said capacitors during the oscillation period.

Claim 15 (new). The method according to claim 12, which comprises setting the amplitudes of the alternating currents injected into the capacitors to a value within a μA range.

Claim 16 (new). The method according to claim 12, which comprises subjecting the direct current voltage corresponding to the cell current of each cell relative to ground to a limit value comparison at an upper and a lower limit value, and, if the upper limit value is exceeded, deducing an overvoltage of the cell, and if the lower limit value is undershot, deducing a short-circuit of the cell.

Claim 17 (new). The method according to claim 12, which comprises storing the direct current voltage values corresponding to the cell voltages of each cell relative to ground, to thereby enable a detection of a slow balancing behavior, during charge balancing, of individual cell voltages and to define a termination of the charging or discharging process and enable long-term monitoring of each individual cell for a drop in the capacitance or an increase in the self-discharge or the internal resistance.